

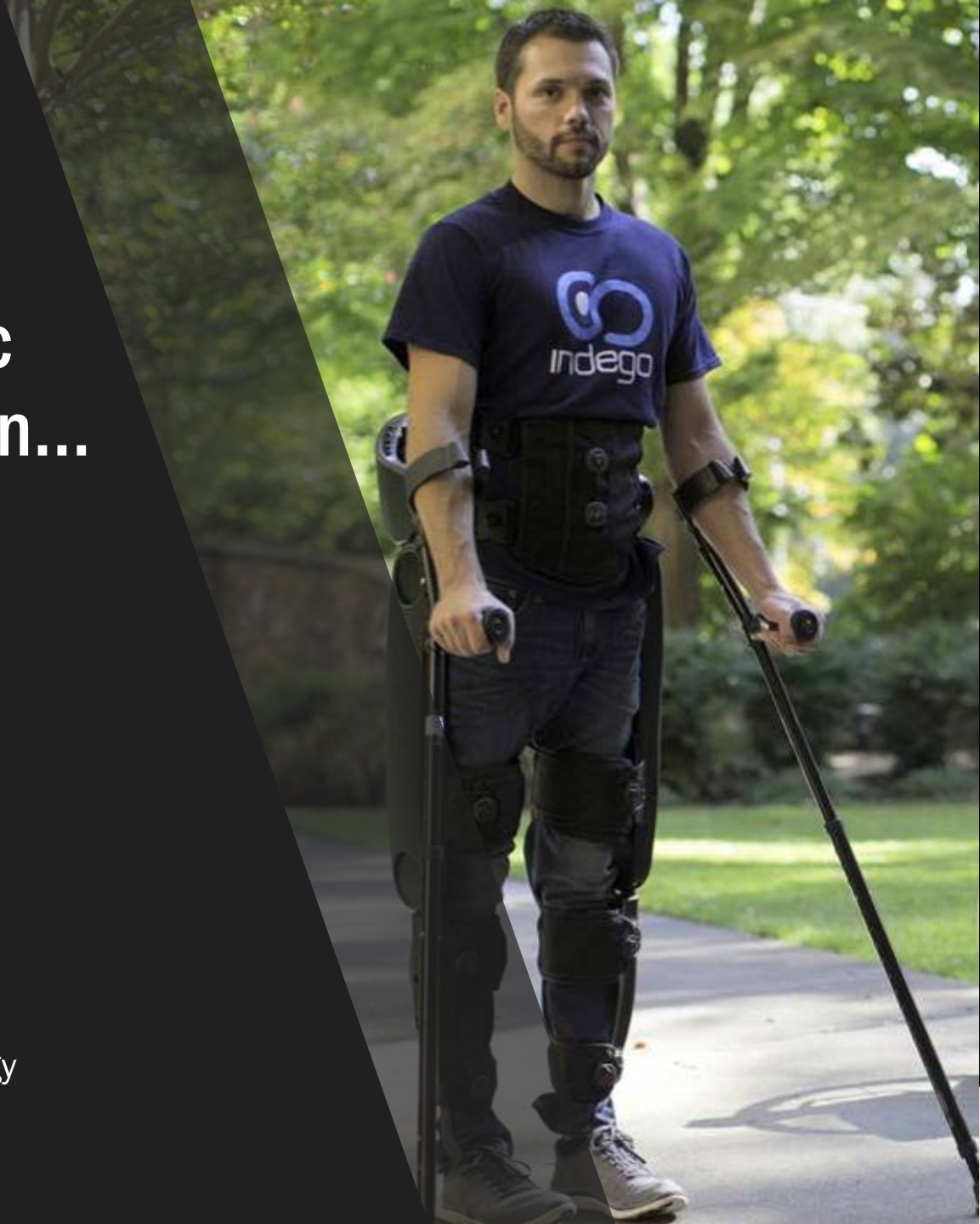
**Making paraplegic
patients walk again...**

Is it worth it?

Michelle Askholm

Center for Assisted Living Technology

City of Aarhus



Exoskeletons i Aarhus

2015



Vestdansk Center for Rygmarvsskade



2016



2017



Project aim

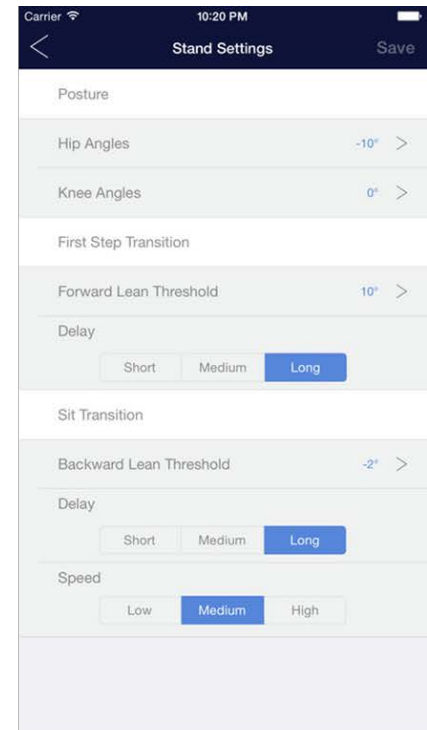
Is it possible to improve paraplegic patients' state of health and quality of life while improving the municipality's efficiency?



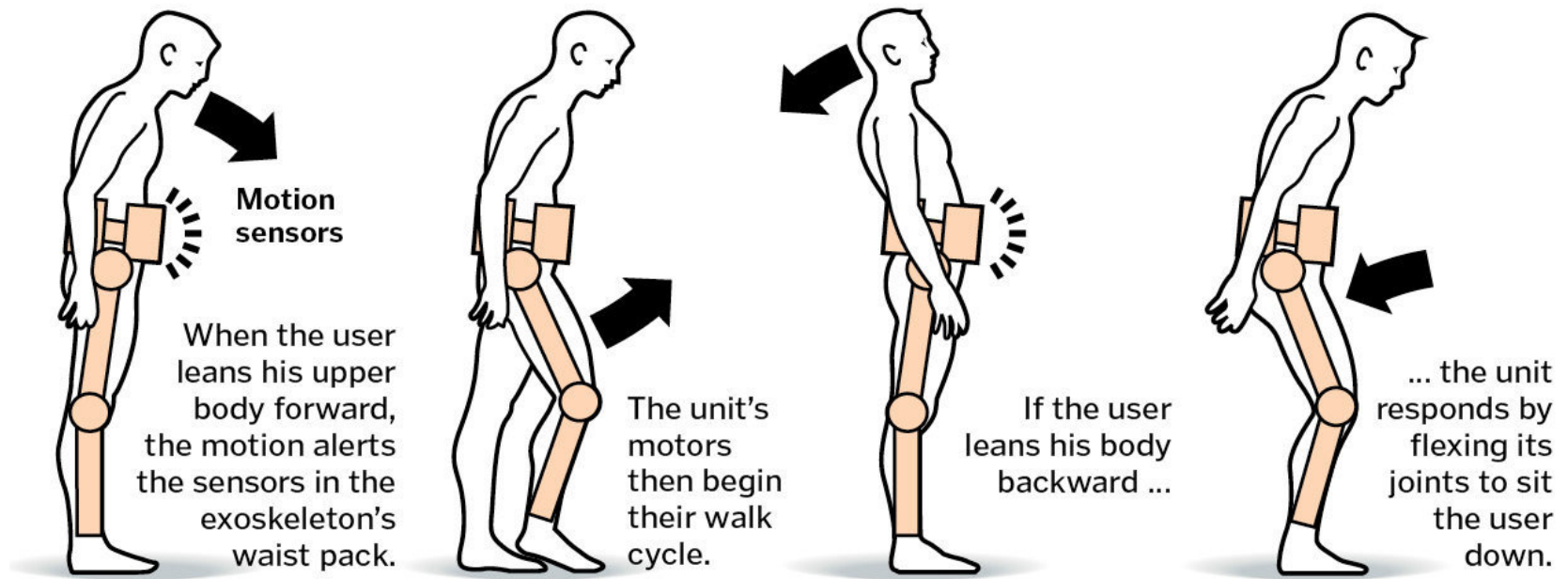
Is exoskeletons worth it?



The Indego Exoskeleton



How does it work?



SOURCE: Parker-Hannifin

WILLIAM NEFF | THE PLAIN DEALER

Method

- 1 participant
- 3 month test period
- Holistic approach – focus on the user
- Measurements at beginning and ending of test period

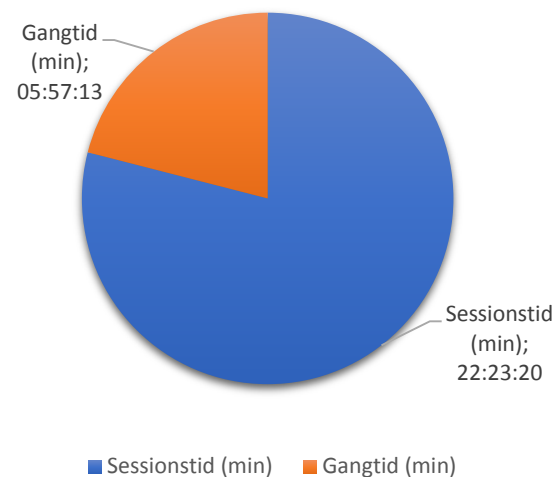


Data	Measurement	Responsible	
State of health	Pressure ulcers	-	Physiotherapists <u>Collaborations</u> <ul style="list-style-type: none"> Spinal Cord Injury Centre of Western Denmark Medical practitioner
	Spasticity	-	
	Contractures	Joint mobility	
	Shoulder function	-	
	Gastrointestinal complications	-	
	Urinary complications	-	
	Pain	NRS-scale	
	Walking and balance-test	6 min. walking, 10 meters test, Timed Up and Go (TUG), Bergs balance-test	
Business Case Services Assistance from the municipality	Reduced/changed need for helping aids	-	Project manager <u>Collaborations</u> <ul style="list-style-type: none"> Spinal Cord Injury Centre of Western Denmark Medical practitioner Different departments in the Municipality
	Less need for medication	Medical journal & interview	
	Reduced need for Personal helper	-	
	Changed need for home alterations	-	
	Reduced amount of days of illness	Medical journal & interview	
Independency Quality of life	Activity analysis (independency)	COPM AMPS	Occupational therapist
	Autonomy and independency	IPA	-
	Health outcome	EQ-5D	-
Other effects patient	Use scenarios	Log of use, pain, questions etc.	Physiotherapists
	Experiences effects Social effects	Interview	Project manager
Technology	Indego function	Error log	-

Usage of Indego

- Cooking and making coffee
- Small household tasks
 - Cleaning in cupboards
 - Ironing shirts
 - Folding of washed clothes
- Walking (*at home and for training*)
- Rocking around the christmas tree 😊
- Standing at the office

Anvendelse af robotben



Total amount of use	22 t. 23 min. 20 sek.
Walking time	5 t. 57 min. 13 sek.
Time pr. week	1 t. 28 min. 17 sek.
Time pr. session	33 min. 6 sek.
Walking pr. session	8 min. 30 sek.

Test results

- Improved walking speed
- Improved balance
- Reduced amount of spasticity
- Improved gastrointestinal function



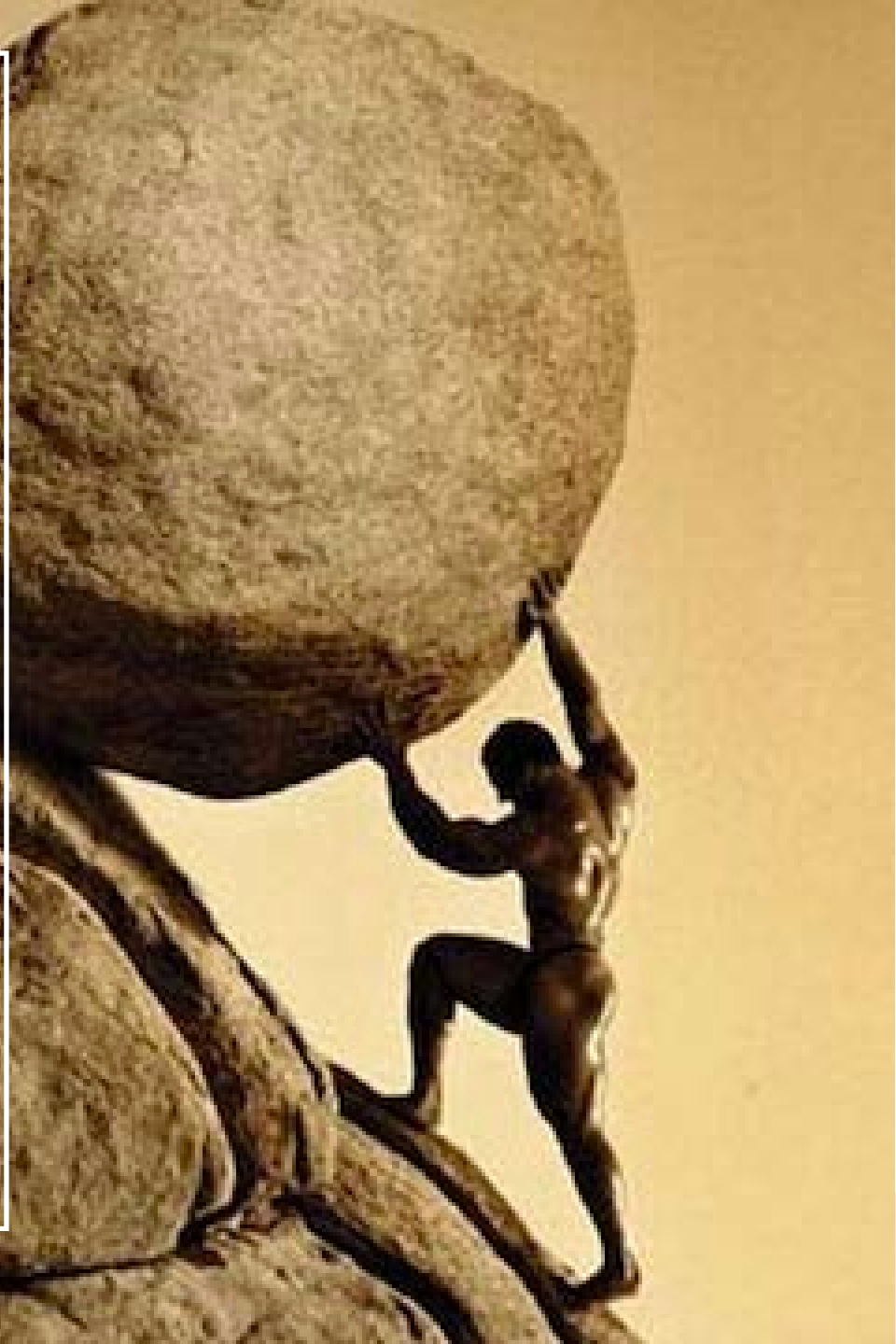
The participants experiences

- Increased quality of life
- Improved sense of health
- Improved feeling of independency



Technology

- No technical issues! 😊
- Difficulties attaching the Indego
- Limited independency
 - Difficult to carry things
 - Challenged balance
 - Uneven surfaces
- Updated criterias for use



Business Case

- Self reliant
 - Small amount of complications (yet)
 - Indego is prevention
-
- Benefits/effects go to both the municipalities and regions

Is it worth it?

Yes and No

Perspectives

- Further work on business case
- Combining of all Indego results
- Decision about exoskeletons in Aarhus